

Thrombin.ST25.txt
SEQUENCE LISTING

<110> Emory University

<120> Antithrombotic Variant Thrombins

<130> E056 1070.1

<160> 13

<170> PatentIn version 3.0

<210> 1

<211> 295

<212> PRT

<213> Homo sapiens

<220>

<221> CHAIN

<222> (1)..(36)

<223> Thrombin w215A A-Chain

<220>

<221> CHAIN

<222> (37)..(295)

<223> Thrombin w215A B-Chain

<400> 1

Thr	Phe	Gly	Ser	Gly	Glu	Ala	Asp	Cys	Gly	Leu	Arg	Pro	Leu	Phe	Glu
1				5					10					15	
Lys	Lys	Ser	Leu	Glu	Asp	Lys	Thr	Glu	Arg	Glu	Leu	Leu	Glu	Ser	Tyr
			20					25					30		
Ile	Asp	Gly	Arg	Ile	Val	Glu	Gly	Ser	Asp	Ala	Glu	Ile	Gly	Met	Ser
		35				40						45			
Pro	Trp	Gln	Val	Met	Leu	Phe	Arg	Lys	Ser	Pro	Gln	Glu	Leu	Leu	Cys
	50					55					60				

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Gly Ala Ser Leu Ile Ser Asp Arg Trp Val Leu Thr Ala Ala His Cys
65 70 75 80
Leu Leu Tyr Pro Pro Trp Asp Lys Asn Phe Thr Glu Asn Asp Leu Leu
85 90 95
Val Arg Ile Gly Lys His Ser Arg Thr Arg Tyr Glu Arg Asn Ile Glu
100 105 110
Lys Ile Ser Met Leu Glu Lys Ile Tyr Ile His Pro Arg Tyr Asn Trp
115 120 125
Arg Glu Asn Leu Asp Arg Asp Ile Ala Leu Met Lys Leu Lys Lys Pro
130 135 140
Val Ala Phe Ser Asp Tyr Ile His Pro Val Cys Leu Pro Asp Arg Glu
145 150 155 160
Thr Ala Ala Ser Leu Leu Gln Ala Gly Tyr Lys Gly Arg Val Thr Gly
165 170 175
Trp Gly Asn Leu Lys Glu Thr Trp Thr Ala Asn Val Gly Lys Gly Gln
180 185 190
Pro Ser Val Leu Gln Val Val Asn Leu Pro Ile Val Glu Arg Pro Val
195 200 205
Cys Lys Asp Ser Thr Arg Ile Arg Ile Thr Asp Asn Met Phe Cys Ala
210 215 220
Gly Tyr Lys Pro Asp Glu Gly Lys Arg Gly Asp Ala Cys Glu Gly Asp
225 230 235 240
Ser Gly Gly Pro Phe Val Met Lys Ser Pro Phe Asn Asn Arg Trp Tyr
245 250 255
Gln Met Gly Ile Val Ser Ala Gly Glu Gly Cys Asp Arg Asp Gly Lys
260 265 270
Tyr Gly Phe Tyr Thr His Val Phe Arg Leu Lys Lys Trp Ile Gln Lys
275 280 285
Val Ile Asp Gln Phe Gly Glu
290 295

<210> 2

<211> 259

<212> PRT

<213> Homo sapiens

<220>

<221> CHAIN

<222> (1)..(259)

<223> Thrombin w215A B-Chain

<400> 2

Ile Val Glu Gly Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val
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1	5	10	15
Met	Leu Phe Arg	Lys Ser Pro Gln Glu	Leu Leu Cys Gly Ala Ser Leu
	20	25	30
Ile	Ser Asp Arg	Trp Val Leu Thr	Ala Ala His Cys Leu Leu Tyr Pro
	35	40	45
Pro	Trp Asp Lys	Asn Phe Thr Glu	Asn Asp Leu Leu Val Arg Ile Gly
	50	55	60
Lys	His Ser Arg	Thr Arg Tyr Glu	Arg Asn Ile Glu Lys Ile Ser Met
65		70	75
Leu	Glu Lys Ile	Tyr Ile His Pro	Arg Tyr Asn Trp Arg Glu Asn Leu
	85	90	95
Asp	Arg Asp Ile	Ala Leu Met Lys	Leu Lys Lys Pro Val Ala Phe Ser
	100	105	110
Asp	Tyr Ile His	Pro Val Cys Leu	Pro Asp Arg Glu Thr Ala Ala Ser
	115	120	125
Leu	Leu Gln Ala	Gly Tyr Lys Gly	Arg Val Thr Gly Trp Gly Asn Leu
	130	135	140
Lys	Glu Thr Trp	Thr Ala Asn Val	Gly Lys Gly Gln Pro Ser Val Leu
145		150	155
Gln	Val Val Asn	Leu Pro Ile Val	Glu Arg Pro Val Cys Lys Asp Ser
	165	170	175
Thr	Arg Ile Arg	Ile Thr Asp Asn	Met Phe Cys Ala Gly Tyr Lys Pro
	180	185	190
Asp	Glu Gly Lys	Arg Gly Asp Ala	Cys Glu Gly Asp Ser Gly Gly Pro
	195	200	205
Phe	Val Met Lys	Ser Pro Phe Asn	Asn Arg Trp Tyr Gln Met Gly Ile
	210	215	220
Val	Ser Ala Gly	Glu Gly Cys Asp	Arg Asp Gly Lys Tyr Gly Phe Tyr
225		230	235
Thr	His Val Phe	Arg Leu Lys Lys	Trp Ile Gln Lys Val Ile Asp Gln
	245	250	255

Phe Gly Glu

<210> 3

<211> 295

<212> PRT

<213> Homo sapiens

<220>

<221> CHAIN

<222> (1)..(36)

<223> Thrombin WE A-Chain

Thrombin.ST25.txt

<220>

<221> CHAIN

<222> (37)..(295)

<223> Thrombin WE B-Chain

<400> 3

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Thr Phe Gly Ser Gly Glu Ala Asp Cys Gly Leu Arg Pro Leu Phe Glu
1      5      10      15
Lys Lys Ser Leu Glu Asp Lys Thr Glu Arg Glu Leu Leu Glu Ser Tyr
20      25      30
Ile Asp Gly Arg Ile Val Glu Gly Ser Asp Ala Glu Ile Gly Met Ser
35      40      45
Pro Trp Gln Val Met Leu Phe Arg Lys Ser Pro Gln Glu Leu Leu Cys
50      55      60
Gly Ala Ser Leu Ile Ser Asp Arg Trp Val Leu Thr Ala Ala His Cys
65      70      75      80
Leu Leu Tyr Pro Pro Trp Asp Lys Asn Phe Thr Glu Asn Asp Leu Leu
85      90      95
Val Arg Ile Gly Lys His Ser Arg Thr Arg Tyr Glu Arg Asn Ile Glu
100     105     110
Lys Ile Ser Met Leu Glu Lys Ile Tyr Ile His Pro Arg Tyr Asn Trp
115     120     125
Arg Glu Asn Leu Asp Arg Asp Ile Ala Leu Met Lys Leu Lys Lys Pro
130     135     140
Val Ala Phe Ser Asp Tyr Ile His Pro Val Cys Leu Pro Asp Arg Glu
145     150     155     160
Thr Ala Ala Ser Leu Leu Gln Ala Gly Tyr Lys Gly Arg Val Thr Gly
165     170     175
Trp Gly Asn Leu Lys Glu Thr Trp Thr Ala Asn Val Gly Lys Gly Gln
180     185     190
Pro Ser Val Leu Gln Val Val Asn Leu Pro Ile Val Glu Arg Pro Val
195     200     205
Cys Lys Asp Ser Thr Arg Ile Arg Ile Thr Asp Asn Met Phe Cys Ala
210     215     220
Gly Tyr Lys Pro Asp Glu Gly Lys Arg Gly Asp Ala Cys Glu Gly Asp
225     230     235     240
Ser Gly Gly Pro Phe Val Met Lys Ser Pro Phe Asn Asn Arg Trp Tyr
245     250     255
Gln Met Gly Ile Val Ser Ala Gly Ala Gly Cys Asp Arg Asp Gly Lys
260     265     270
Tyr Gly Phe Tyr Thr His Val Phe Arg Leu Lys Lys Trp Ile Gln Lys
275     280     285

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Val Ile Asp Gln Phe Gly Glu
290 295

<210> 4

<211> 259

<212> PRT

<213> Homo sapiens

<220>

<221> CHAIN

<222> (1)..(259)

<223> Thrombin WE B-Chain

<400> 4

Ile Val Glu Gly Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val
1 5 10 15
Met Leu Phe Arg Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu
20 25 30
Ile Ser Asp Arg Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro
35 40 45
Pro Trp Asp Lys Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly
50 55 60
Lys His Ser Arg Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met
65 70 75 80
Leu Glu Lys Ile Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu
85 90 95
Asp Arg Asp Ile Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser
100 105 110
Asp Tyr Ile His Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser
115 120 125
Leu Leu Gln Ala Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu
130 135 140
Lys Glu Thr Trp Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu
145 150 155 160
Gln Val Val Asn Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser
165 170 175
Thr Arg Ile Arg Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro
180 185 190
Asp Glu Gly Lys Arg Gly Asp Ala Cys Glu Gly Asp Ser Gly Gly Pro
195 200 205
Phe Val Met Lys Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile
210 215 220
Val Ser Ala Gly Ala Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr

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225		230		235		240
Thr	His	Val	Phe	Arg	Leu	Lys
				245		
					Lys	Trp
					250	
						Ile
						Gln
						Val
						Ile
						Asp
						255
						Gln

Phe Gly Glu

<210> 5

<211> 888

<212> DNA

<213> Homo sapiens

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<221> misc_feature

<222> (1)..(108)

<223> Coding thrombin WE A-Chain

<220>

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<222> (109)..(888)

<223> Coding thrombin WE B-Chain

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tcggatgcag	agatcggcat	gtcaccttgg	caggtgatgc	ttttccggaa	gagtccccag	180
gagctgctgt	gtggggccag	cctcatcagt	gaccgctggg	tcctcaccgc	cgccccactgc	240
ctcctgtacc	cgccctggga	caagaacttc	accgagaatg	accttctggt	gcgcatctggc	300
aagcactccc	gcaccaggta	cgagcgaaac	attgaaaaga	tatccatgtt	ggaaaagatc	360
tacatccacc	ccaggtacaa	ctggcgggag	aacctggacc	gggacattgc	cctgatgaag	420
ctgaagaagc	ctgttgccct	cagtgactac	attcaccctg	tgtgtctgcc	cgacagggag	480
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ctgcccattg	tggagcggcc	ggtctgcaag	gactccaccc	ggatccgcat	cactgacaac	660
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agtgggggac	cctttgtcat	gaagagcccc	tttaacaacc	gctgggtatca	aatgggcatc	780
gtctcagcgg	gtgcaggctg	tgaccgggat	gggaaatatg	gcttctacac	acatgtgttc	840
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<210> 6
<211> 780
<212> DNA
<213> Homo sapiens

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<223> Coding thrombin WE B-Chain

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gccgcccact gcctcctgta cccgccctgg gacaagaact tcaccgagaa tgaccttctg	180
gtgcgcattg gcaagcactc ccgcaccagg tacgagcgaa acattgaaaa gatatccatg	240
ttggaaaaga tctacatcca ccccaggtac aactggcggg agaacctgga ccgggacatt	300
gccctgatga agctgaagaa gcctgttgcc ttcagtgact acattcacc tgtgtgtctg	360
cccgcacagg agacggcagc cagcttgctc caggctggat acaaggggcg ggtgacaggc	420
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cagggtggtg acctgcccac tgtggagcgg ccggtctgca aggactccac ccggatccgc	540
atcactgaca acatgttctg tgctgggttac aagcctgatg aagggaaacg aggggatgcc	600
tgtgaagggtg acagtggggg accctttgtc atgaagagcc cctttaacaa ccgctgggtat	660
caaattgggca tcgtctcagc ggggtgcaggc tgtgaccggg atgggaaata tggcttctac	720
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<210> 7
<211> 29
<212> DNA
<213> Artificial

<220>
<223> Primer
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<222> (14)..(16)
<223> Misc_feature

<400> 7
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<210> 8
<211> 29
<212> DNA
<213> Artificial

<220>
<223> Primer
<220>
<221> misc_feature
<222> (14)..(16)
<223> Misc_feature

<400> 8
cacagccttc accnnntgag acgatgccc 29

<210> 9
<211> 22
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 9
gaagatctac atccacccca gg 22

<210> 10
<211> 19
<212> DNA
<213> Artificial

<220>

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<223> Primer

<400> 10
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19

<210> 11

<211> 35

<212> DNA

<213> Artificial

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<223> Primer

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<210> 12

<211> 35

<212> DNA

<213> Artificial

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<223> Primer

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35

<210> 13

<211> 30

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<213> Artificial

<220>

<223> TR33-62

<400> 13

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Asn	Asp	Lys	Tyr	Glu	Pro	Phe	Trp	Glu	Asp	Glu	Glu	Lys	Asn		
			20					25					30		